
**Environmental Research; University of Texas Austin Reports Findings in Environmental Research
(Assessing cumulative water impacts from shale oil and gas production: Permian Basin case study)**

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2021 DEC 31 (VerticalNews) -- By a News Reporter-Staff News Editor at Ecology, Environment & Conservation -- New research on Environmental Research is the subject of a report. According to news reporting originating in Austin, Texas, by VerticalNews journalists, research stated, "Quantifying impacts of unconventional oil and gas production on water resources and aquatic habitats is critical for developing management approaches for mitigation. The study objective was to evaluate impacts of oil and gas production on groundwater and surface water and assess approaches to reduce these impacts using the Permian Basin as a case study."

The news reporters obtained a quote from the research from the University of Texas Austin, "Water demand for hydraulic fracturing (HF) was compared to water supplies. We also examined contamination from surface spills. Results show that water demand for HF peaked in 2019, representing ~28% of water use in non-mining sectors. Most HF water was sourced from aquifers with ~1100 wells drilled in the Ogallala aquifer in 2019. The State monitoring network did not show regional groundwater depletion but was not sufficiently dense to address local impacts. Groundwater depletion is more critical in the western Delaware Basin within the Permian Basin because groundwater is connected to large flowing springs (e.g. San Solomon Springs) and to the Pecos River which has total dissolved solids ranging from ~3000 to 14,000 mg/L. Most produced water (70-80%) is disposed in shallow geologic units that could result in overpressuring and potential groundwater contamination from leakage through ~70,000 abandoned oil wells, including orphaned wells. While there is little evidence of leakage from abandoned wells, the state monitoring system was not designed to assess leakage from these wells. Oil spill counts totaled ~11,000 in the Permian (2009-2018). Approaches to mitigating adverse impacts on water management include reuse of PW for HF; however, there is an excess of PW in the Delaware Basin. Treatment and reuse in other sectors outside of oil and gas are also possibilities."

According to the news reporters, the research concluded: "Data gaps include reporting of water sources for HF, PW quality data required for assessing treatment and reuse, subsurface disposal capacity for accommodating PW, and spills from PW in Texas."

This research has been peer-reviewed.

For more information on this research see: Assessing cumulative water impacts from shale oil and gas production: Permian Basin case study. Science of The Total Environment, 2021:152306. Science of The Total Environment can be contacted at: Elsevier, Radarweg 29, 1043 Nx Amsterdam, Netherlands. (Elsevier - www.elsevier.com; Science of The Total Environment - www.journals.elsevier.com/science-of-the-total-environment/)

Our news correspondents report that additional information may be obtained by contacting Bridget R. Scanlon, **Bureau of Economic Geology**, Jackson School of Geosciences, University of Texas Austin, Austin, TX, United States. Additional authors for this research include Robert C. Reedy and Brad D. Wolaver.

The publisher of the journal Science of The Total Environment can be contacted at: Elsevier, Radarweg 29, 1043 Nx Amsterdam, Netherlands.

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